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**PATENT APPLICATION**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re application of

Docket No: Q63079

Seiji UMEMOTO

Appln. No.: 09/781,278

Group Art Unit: 2871

Confirmation No.: 9442

Examiner: Prasad R. AKKAPEDDI

Filed: February 13, 2001

For: REFLECTOR AND LIQUID-CRYSTAL DISPLAY DEVICE

**SUBMISSION OF APPELLANT'S BRIEF ON APPEAL**

**MAIL STOP APPEAL BRIEF - PATENTS**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

Submitted herewith please find an original and two copies of Appellant's Brief on Appeal. A check for the statutory fee of \$330.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted,

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WASHINGTON OFFICE  
**23373**  
CUSTOMER NUMBER

Date: April 21, 2004



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**APPELLANTS' BRIEF ON APPEAL UNDER 37 C.F.R. § 1.192**

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Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

In accordance with the provisions of 37 C.F.R. § 1.192, Appellant submits the following:

**I. REAL PARTY IN INTEREST**

The real party in interest is Nitto Denko Corporation, by virtue of assignment executed by the Appellant, Seiji Umemoto, on February 1, 2001, and recorded by the Assignment Division of the U.S. Patent and Trademark Office on February 13, 2001 (at Reel 011556, Frame 0470), in the present application captioned above.

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## **II. RELATED APPEALS AND INTERFERENCES**

To the best of the knowledge and belief of the Appellant, the Assignee and the undersigned, there are no other appeals or interferences before the Board of Appeals and Interferences that will directly affect or be affected by the Board's decision in the present Appeal.

## **III. STATUS OF CLAIMS**

The present application was filed with claims 1-10 on February 13, 2001. By Amendment filed on July 21, 2003, claims 5-6 were amended, and new claims 11-13 were added to the application. Accordingly, claims 1-13 are all the claims currently pending in the application. Claims 1 and 7-10 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Akins et al (US Patent No. 6,285,426). Claims 2-4 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Akins et al. and further in view of Naito (US Patent No. 6,091,469) and Zimmerman et al (US Patent No. 5,598,281). In addition, claims 5-6 stand finally rejected over Akins et al. in view of Bao et al (US Patent No. 6,266,108). Further, claims 11-13 stand finally rejected under 35 U.S.C. § 103(a) as being unpatentable over Akins et al. This appeal is directed to claims 1-13.

## **IV. STATUS OF AMENDMENTS**

No amendments to the claims were filed subsequent to the final Office Action dated October 1, 2003. Thus, all amendments have been entered.

## **V. SUMMARY OF THE INVENTION**

Figs. 1A to 1C show exemplary embodiments of a reflector in accordance with the present invention. A reflector 1 includes a transparent film 11; an adhesive layer 12; a layer 13 of a structure of grooves A that have optical path changing slopes A1, i.e., a layer 13 of a repetitive structure of a plurality of optical path changing means A; a cover film 14; a light diffusing type reflection layer 16; a resin layer 15 having a finely roughened surface; a protective layer 17; and a release liner 18.<sup>1</sup>

## **VI. ISSUES**

One issue raised in this appeal is whether or not claims 1 and 7-10 are unpatentable under 35 U.S.C. § 103(a) over Akins et al. (US Patent No. 6,285,426). Another issue in this appeal is whether or not claims 2-4 are unpatentable under 35 U.S.C. § 103(a) over Akins et al. in view of Naito (US Patent No. 6,091,469) and Zimmerman et al (US Patent No. 5,598,281). A further issue in this appeal is whether or not claims 5-6 are unpatentable under 35 U.S.C. § 103(a) over Akins et al. in view of Bao et al (US Patent No. 6,266,108). It is another issue in this appeal whether or not claims 11-13 are unpatentable under 35 U.S.C. § 103(a) over Akins et al.

## **VII. GROUPING OF CLAIMS**

For purposes of this appeal, claims 1-13 stand or fall together as a group.

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<sup>1</sup> See specification, page 8, ln. 8-16

### **VIII. ARGUMENTS**

Fig. 1A of the present application shows a reflector 1, which has a transparent film 11, an adhesive layer 12, and a layer 13 of a structure of grooves A having optical path changing slopes A1. As clearly shown in Fig. 1A, the adhesive layer 12 is arranged on one surface of the transparent film 11, and the layer 13 of structures of grooves is arranged at the other, opposing surface of the transparent film 11.<sup>2</sup>

Independent claim 1 is directed to a reflector, which includes, among other things, a transparent film; an adhesive layer disposed on one surface of the transparent film; and a groove structure that is provided on the other surface of the transparent film (wherein the groove structure has a plurality of grooves including optical path changing slopes).

In the "Response to Arguments" section on page 8 of the final Office Action dated October 1, 2003 (see "Examiner's response to argument No. 2"), the Examiner equates the transparent rear plate 21 near the rear polarizer 28, as shown in Figs. 1 and 2 of the Akins reference, with the "transparent film" recited in claim 1. Further, in the item 5 of the final Office Action, the Examiner equates the "adhesive layer" recited in claim 1 with Akins' transparent adhesive 30. The Examiner further equates the "groove structure" recited in claim 1 with Akins' ridged surface 32.

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<sup>2</sup> See specification, page 8, ln. 9-18

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First, Appellant notes that, as clearly shown in Figs. 1 and 2 of the Akins reference, the transparent adhesive 30 and the ridged surface 32 are not disposed on any surface of the transparent rear plate 21, contrary to what is claimed in claim 1. Rather, as shown in Figs. 1 and 2, the rear polarizer 28 is interposed between the transparent rear plate 21 and the transparent adhesive 30 and the ridged surface 32.

Second, Appellant notes that the transparent adhesive 30 and the ridged surface 32 are not arranged on different sides of the transparent rear plate 21. Rather, both structures are arranged on the same side of the transparent rear plate 21, namely below the transparent rear plate 21. Claim 1, however, recites that the adhesive layer is disposed on one surface of the transparent film, whereas the groove structure is provided on the other surface of the transparent film.

In addition, contrary to the Examiner's position set forth on the Continuation Sheet of the Advisory Action dated January 26, 2004, there is no teaching or suggestion in the Akins reference to rearrange Akins' transparent adhesive 30 and ridged surface 32 such that the transparent adhesive is arranged on one surface of the transparent rear plate 21, while the ridged surface 32 is arranged on the other surface of the transparent rear plate 21. Col. 14, ln. 60-62, of Akins, cited by the Examiner in the Advisory Action, merely teaches that "[a]dditional variations in the embodiments and processes described above may be apparent from this specification." It is not apparent, however, how or why a person skilled in the art would have been motivated by such a general statement to move the transparent adhesive 30 on one surface of the transparent

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rear plate 21, and to keep the ridged surface 32 on the other surface of the transparent rear plate, or vice versa. In fact, as expressly taught in Akins, it is the specific function of the transparent adhesive 30 to affix a ridged reflector 10 (which has the ridged surface 32) to an optical cell 16.<sup>3</sup> If the transparent adhesive were to be removed and moved to the other side of the transparent rear plate 21, this “affixing” function would be destroyed.

For at least the reasons set forth above, Appellant respectfully requests the members of the Board to reverse the rejection of all the appealed claims and to find each of the claims allowable as defining subject matter which would not have been obvious under 35 U.S.C. § 103 at the time such subject matter was invented.

The present Brief on Appeal is being filed in triplicate. Unless a check is submitted herewith for the fee required under 37 C.F.R. §1.192(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

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<sup>3</sup> See Akins reference, col. 5, ln. 13-21

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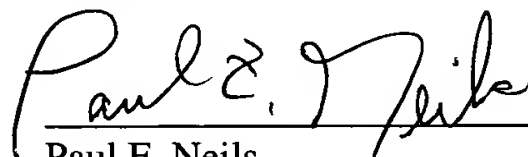
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WASHINGTON OFFICE

**23373**

CUSTOMER NUMBER

Respectfully submitted,

A handwritten signature in cursive script, reading "Paul F. Neils", written over a horizontal line.

Paul F. Neils

Registration No. 33,102

Date: April 21, 2004



## **APPENDIX**

### **CLAIMS 1-13 ON APPEAL:**

1. A reflector comprising:

a transparent film;

an adhesive layer disposed on one surface of said transparent film;

a groove structure provided on the other surface of said transparent film, said groove structure having a plurality of grooves including optical path changing slopes aligned in a substantially constant direction at an inclination angle in a range of from 35 to 48 degrees with respect to a plane of said transparent film;

a transparent cover film formed so as to cover an outer surface of said groove structure;

and

a light diffusing type reflection layer disposed on an outer surface of said cover film.

2. A reflector according to claim 1, wherein said optical path changing slopes are constituted by at least two kinds of slopes in which one kind of slopes aligned in a substantially constant direction serve as a reference while the other kind of slopes are aligned substantially in a direction opposite to said one kind of slopes;

said adhesive layer is covered with a release liner; and

said light diffusing type reflection layer is made of a metal thin film or dielectric multilayer film provided on a fine prismatic surface.

3. A reflector according to claim 1, wherein said inclination angle of each of said optical path changing slopes with respect to said film plane is in a range of from 38 to 45 degrees.

4. A reflector according to claim 1, wherein each of said grooves is shaped substantially like an isosceles triangle, or a triangle other than said isosceles triangle, or a tetragon in section.

5. A reflector according to claim 1, wherein said groove structure further includes flat surfaces each of which is inclined at an inclination angle of at most 5 degrees with respect to said film plane, and

a projected area, on said film plane, of said-flat surfaces is at least 5 times as large as a projected area, on said film plane, of said slopes each having an inclination angle of at least 35 degrees.

6. A reflector according to claim 1, wherein said groove structure is constituted by continuous grooves extended from one end of the film to the other end thereof or by discontinuous grooves each having a length at least 5 times as large as a depth of each of said discontinuous grooves and having optical path changing slopes formed in a direction of the length of said discontinuous grooves.

7. A reflector according to claim 1, wherein ridgelines of said optical path changing slopes are parallel to or inclined within an angle range of  $\pm 30$  degrees with respect to one side of said transparent film.

8. A reflector according to claim 1, wherein said adhesive layer is of a light diffusing type.

9. A lighting-external light double mode liquid-crystal display device comprising:  
a reflector according to claim 1; and  
a transmission type liquid-crystal panel,  
wherein said reflector is bonded to a back side (opposite to a viewing side) of said transmission type liquid-crystal panel through said adhesive layer of said reflector.

10. A liquid-crystal display device according to claim 9, further comprising a light source disposed on at least one of side surfaces of said transmission type liquid-crystal panel, said side surface facing said optical path changing slopes of said reflector.

11. A double mode liquid-crystal display device, comprising:  
a transmission-type liquid-crystal panel having a viewing side and a back side opposite the viewing side; and

a reflector including:

a transparent film having two surfaces;

an adhesive layer disposed on one surface of the transparent film and bonding the reflector to the back side of the transmission-type liquid-crystal panel;

a groove structure provided on the other surface of the transparent film and having a plurality of grooves, each groove including optical path changing slopes at an inclination angle with respect to a plane of the other surface of the transparent film;

a transparent cover film having an inner surface located adjacent the other surface of the transparent film and an outer surface opposite the inner surface; and

a light diffusing type reflection layer disposed on the outer surface of the transparent cover film.

12. The double mode liquid-crystal display device of claim 11, wherein the inclination angle of each groove is in a range of from 35 to 48 degrees with respect to the plane of the other surface of the transparent film.

13. The double mode liquid-crystal display device of claim 11, wherein the transparent cover film has a substantially planar configuration.